

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-353365  
 (43)Date of publication of application : 06.12.2002

(51)Int.CI.

H01L 23/12

(21)Application number : 2001-161914

(71)Applicant : HITACHI LTD

(22)Date of filing : 30.05.2001

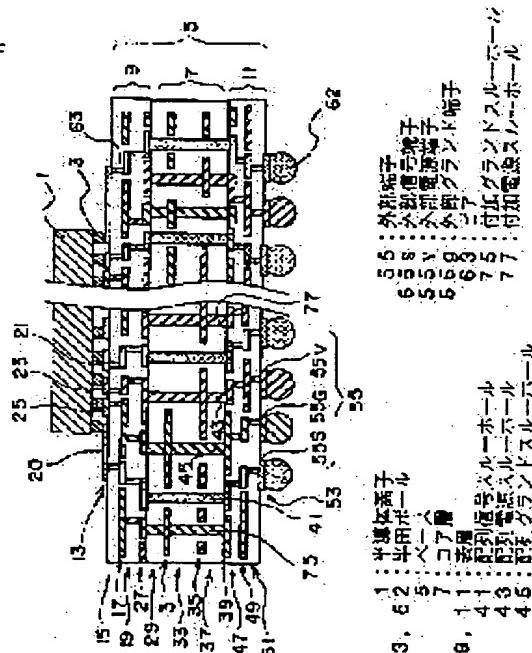
(72)Inventor : NAGATA TATSUYA  
MIYAMOTO SEIJI  
ANDO HIDEKO

## (54) SEMICONDUCTOR DEVICE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To reduce the generation of noises by preventing a semiconductor device from being large-sized.

**SOLUTION:** The device is provided with a base 5 where surface layers 9, 11 are provided on both sides of a core layer 7 formed by a circuit board, and a semiconductor device 1 mounted on a base 5. The semiconductor device 1 is bonded with one surface layer 9 by bonding materials 3, and a plurality of external terminals 55 are arranged on the other surface layer 11. In the core layer 7, there are formed a plurality of through holes 41, 43, 45, 75, 77 which electrically connect the plurality of external terminals 55 with the semiconductor device 1. The plurality of through hole 41, 43, 45, 75, 77 comprises the plurality of array through holes 41, 43, 45 arranged in correspondence with array of the plurality of external terminals 55, and one or more than two additional through holes 75, 77 arranged between the plurality of array through holes 41, 43, 45.



## LEGAL STATUS

[Date of request for examination] 04.11.2004

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's

[decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office